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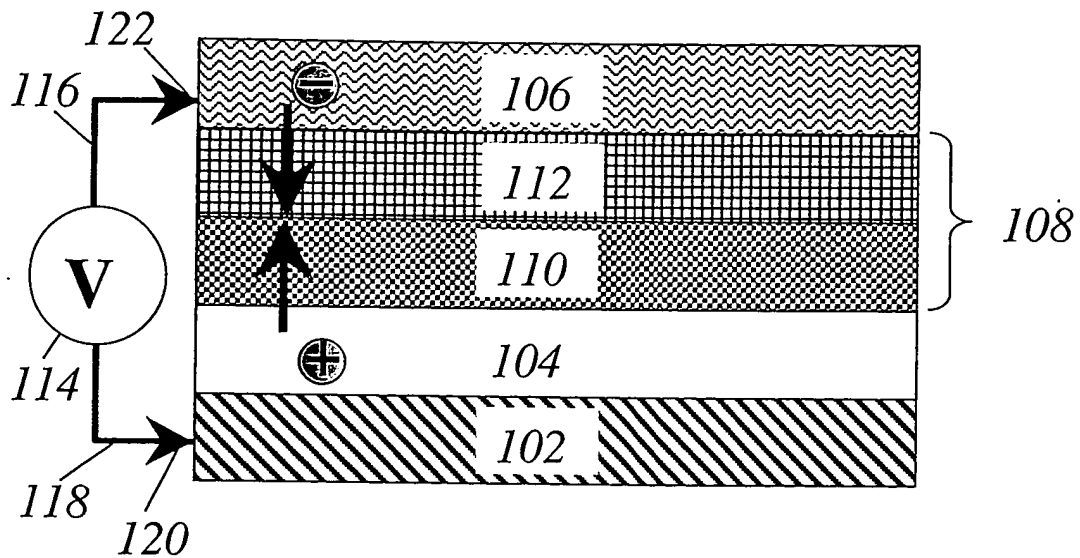
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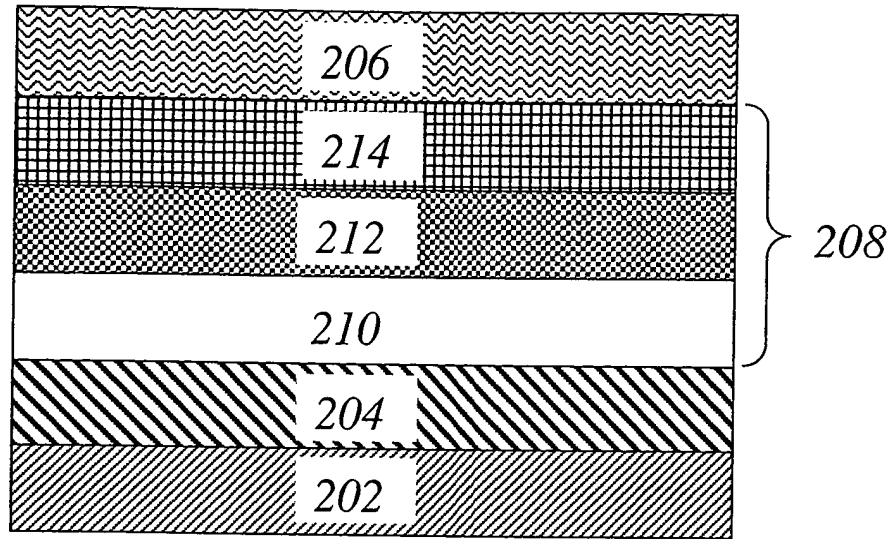
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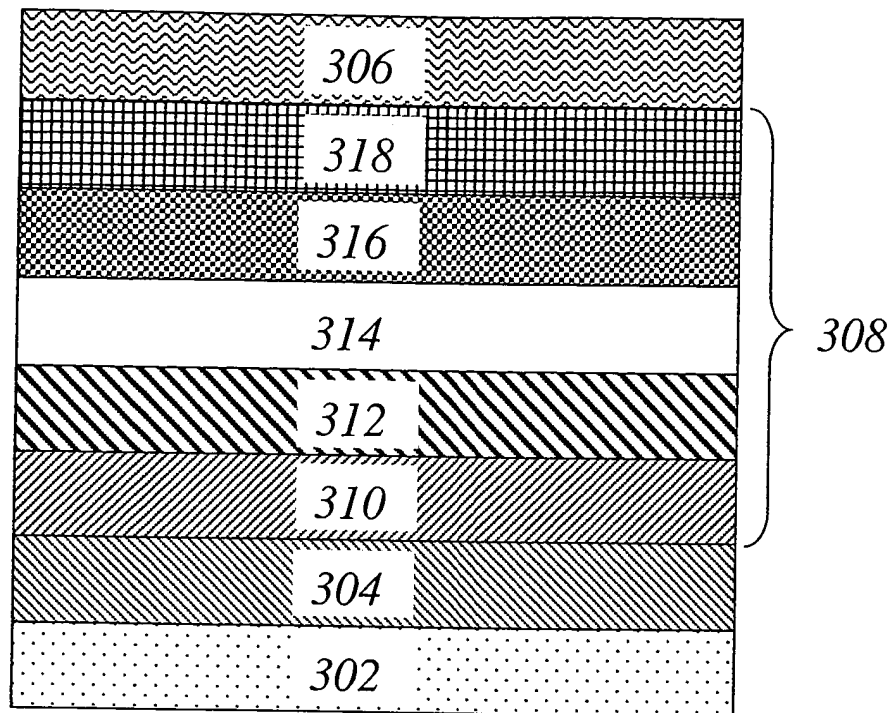
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FIGS. 1. Schematic diagrams of the two-layer structures of preferred EL devices



FIGS. 2. Schematic diagrams of the three-layer structures of preferred EL devices



FIGS. 3. Schematic diagrams of the multi-layer structures of preferred EL devices

FIG. 4 shows the proton NMR spectrum of compound ARLB-39 in CDCl<sub>3</sub>

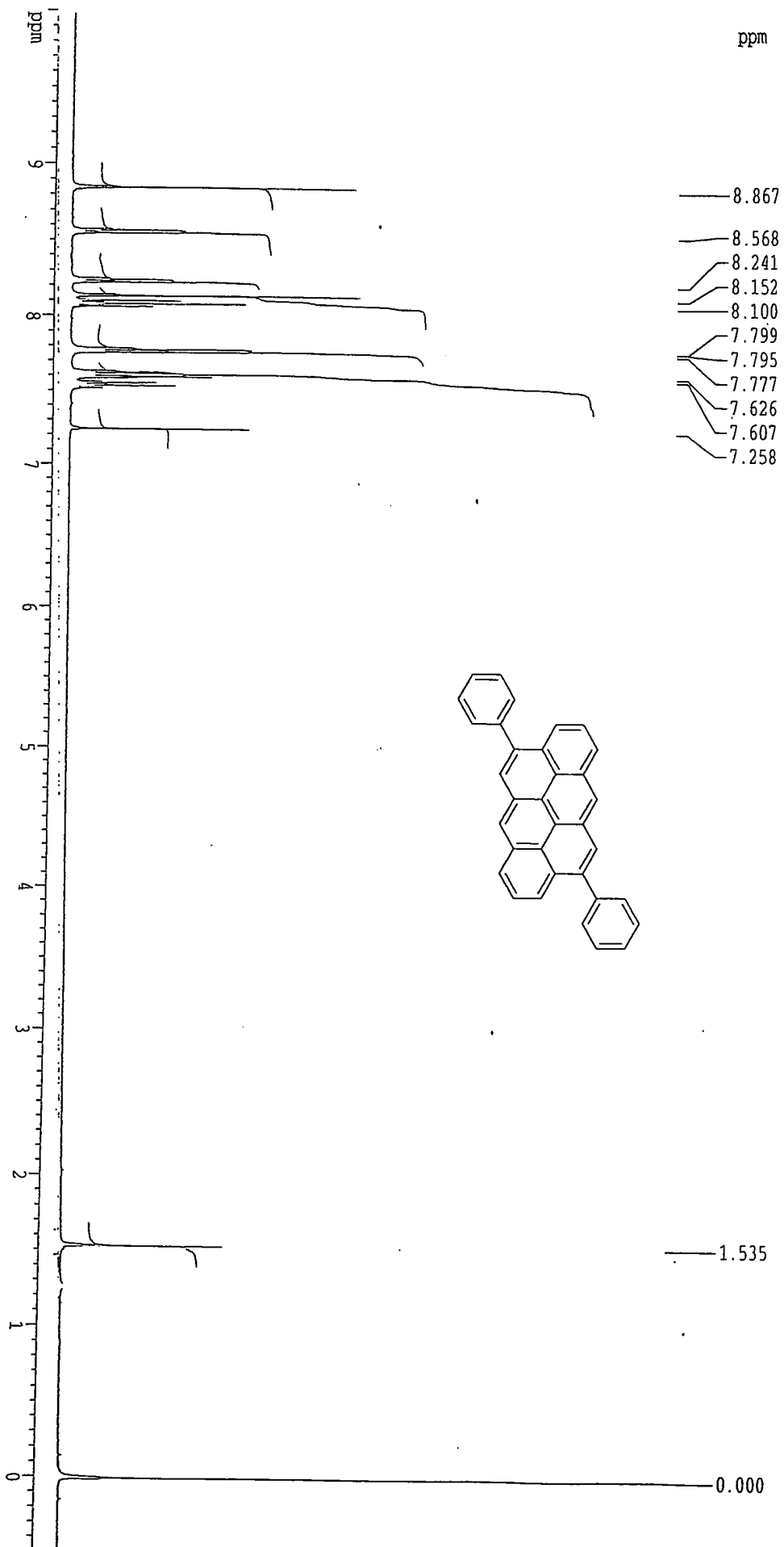
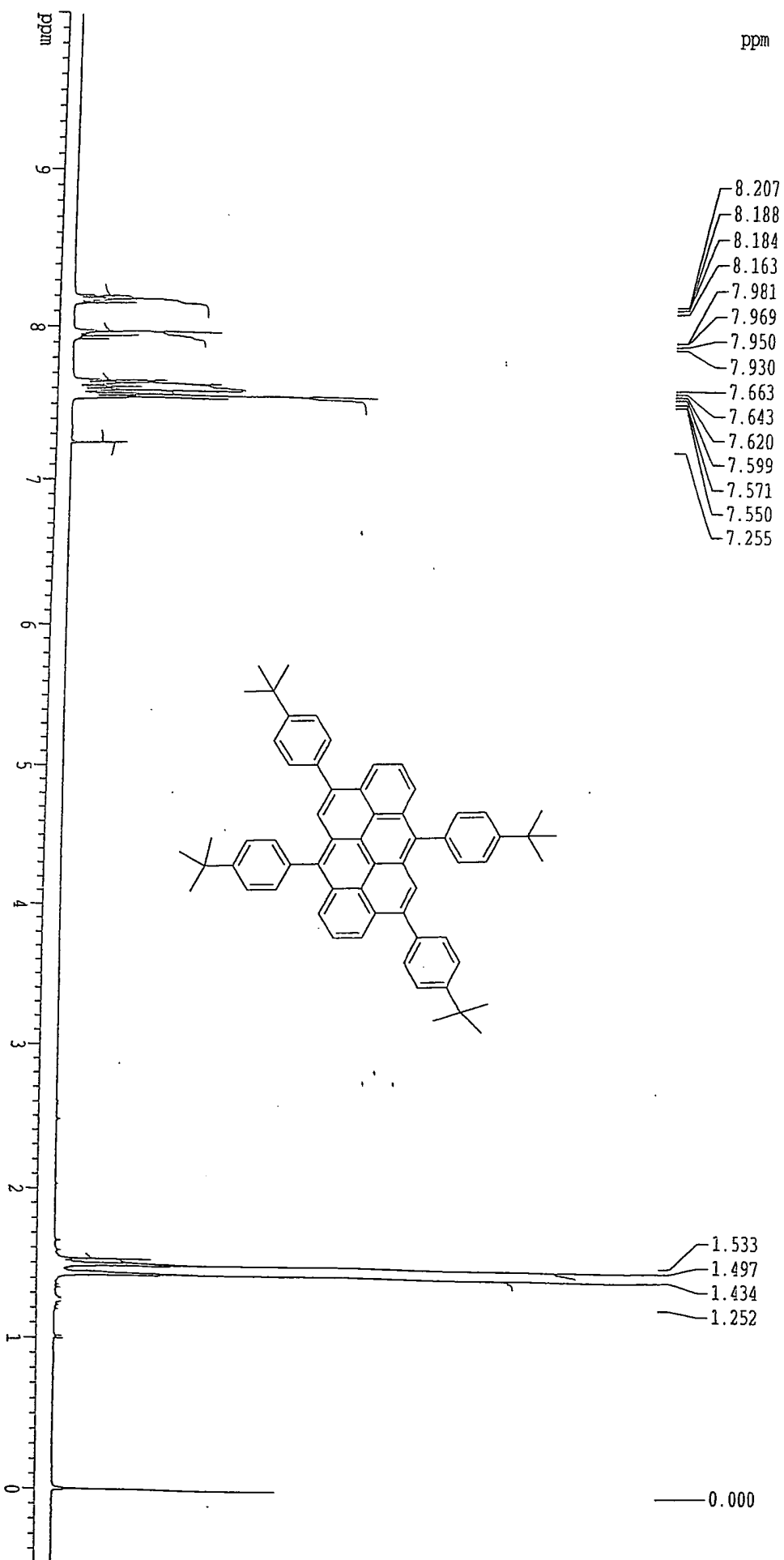


FIG. 5 shows the proton NMR spectrum of compound ARLB-163 in CDCl<sub>3</sub>



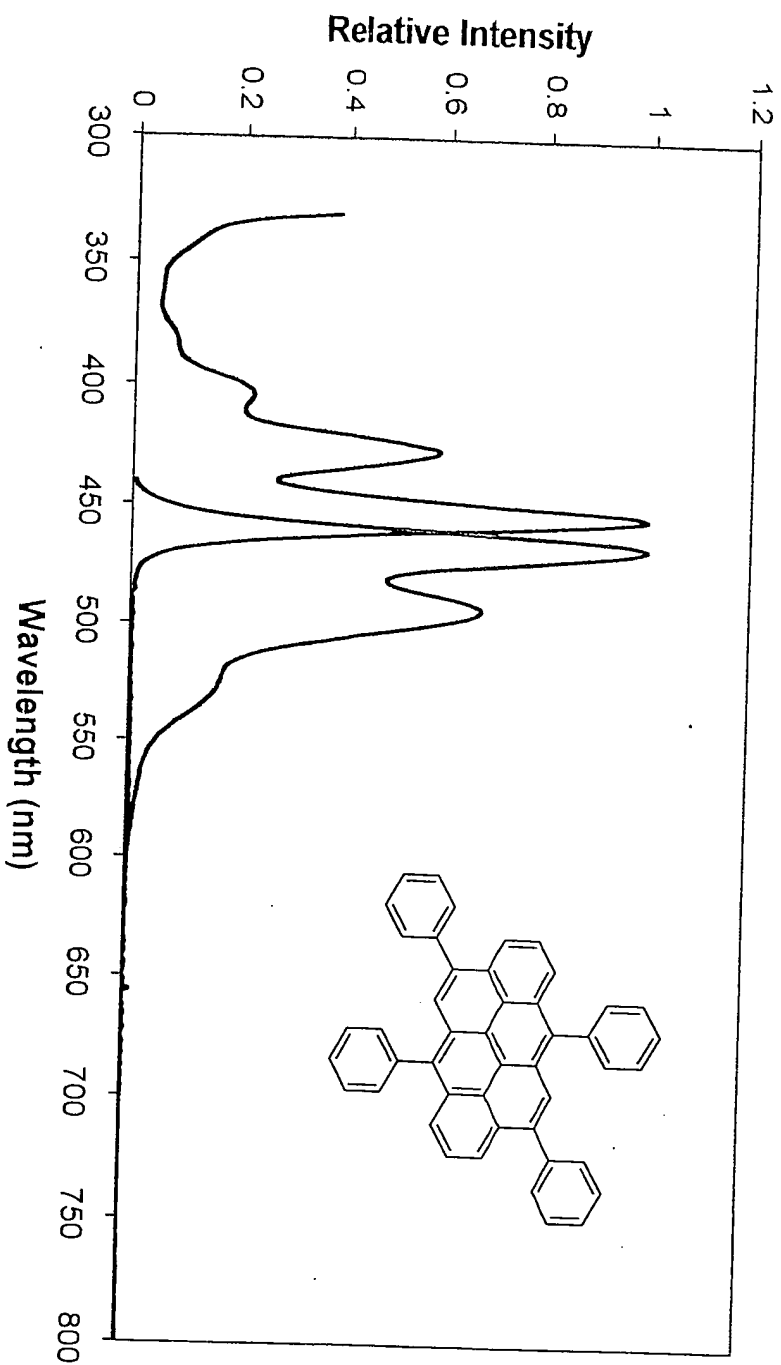


FIG. 6 shows the absorption and emission spectra of compound ARLB-33 in  $\text{CH}_2\text{Cl}_2$

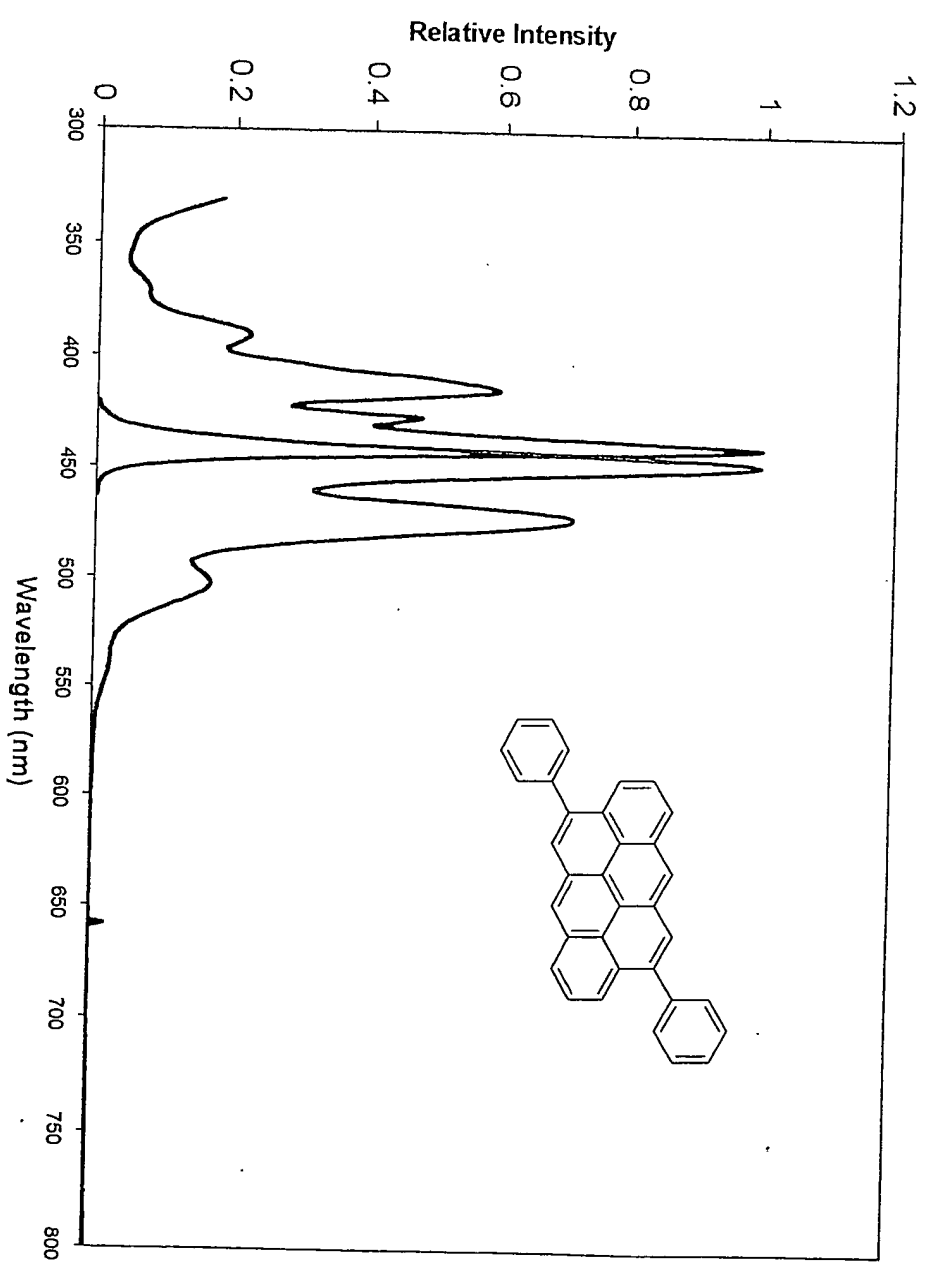


FIG. 7 shows the absorption and emission spectra of compound ARLB-39 in  $\text{CH}_2\text{Cl}_2$

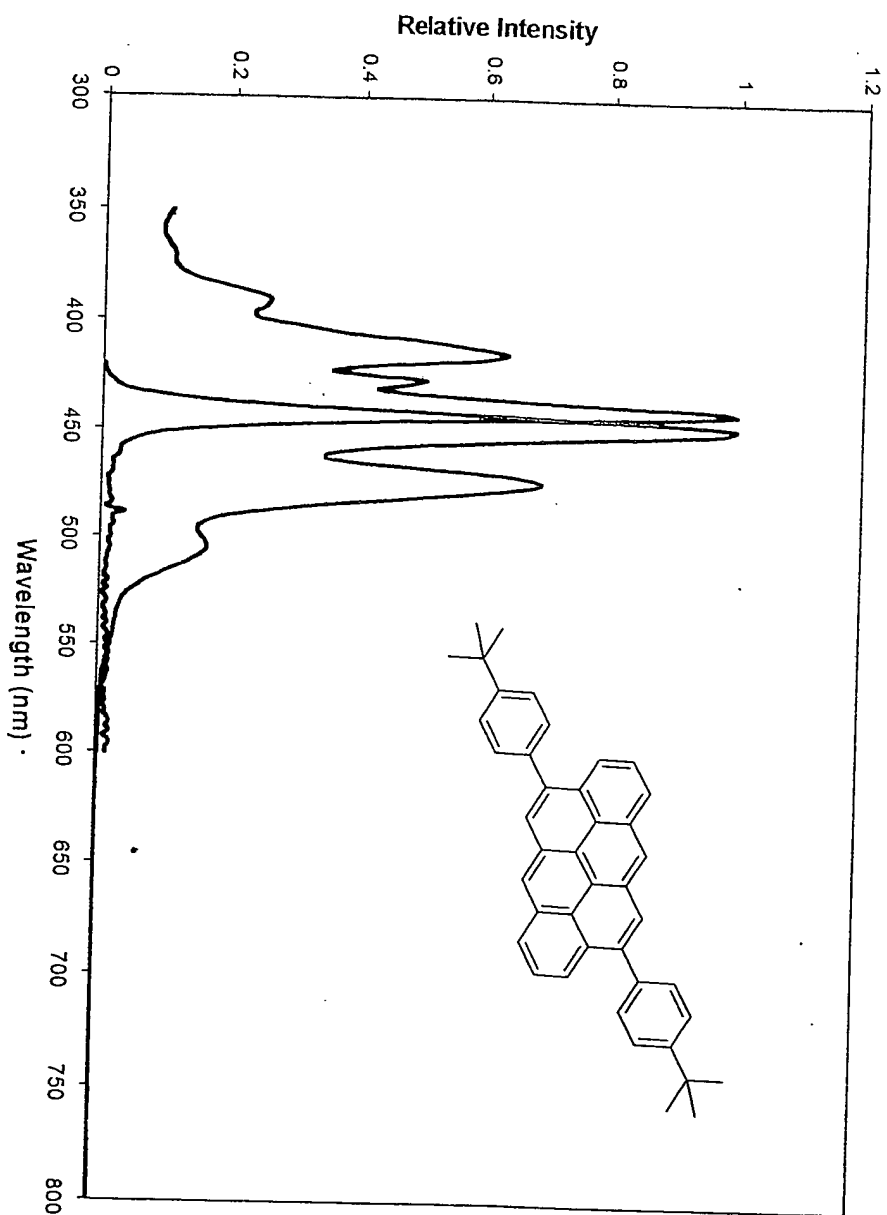
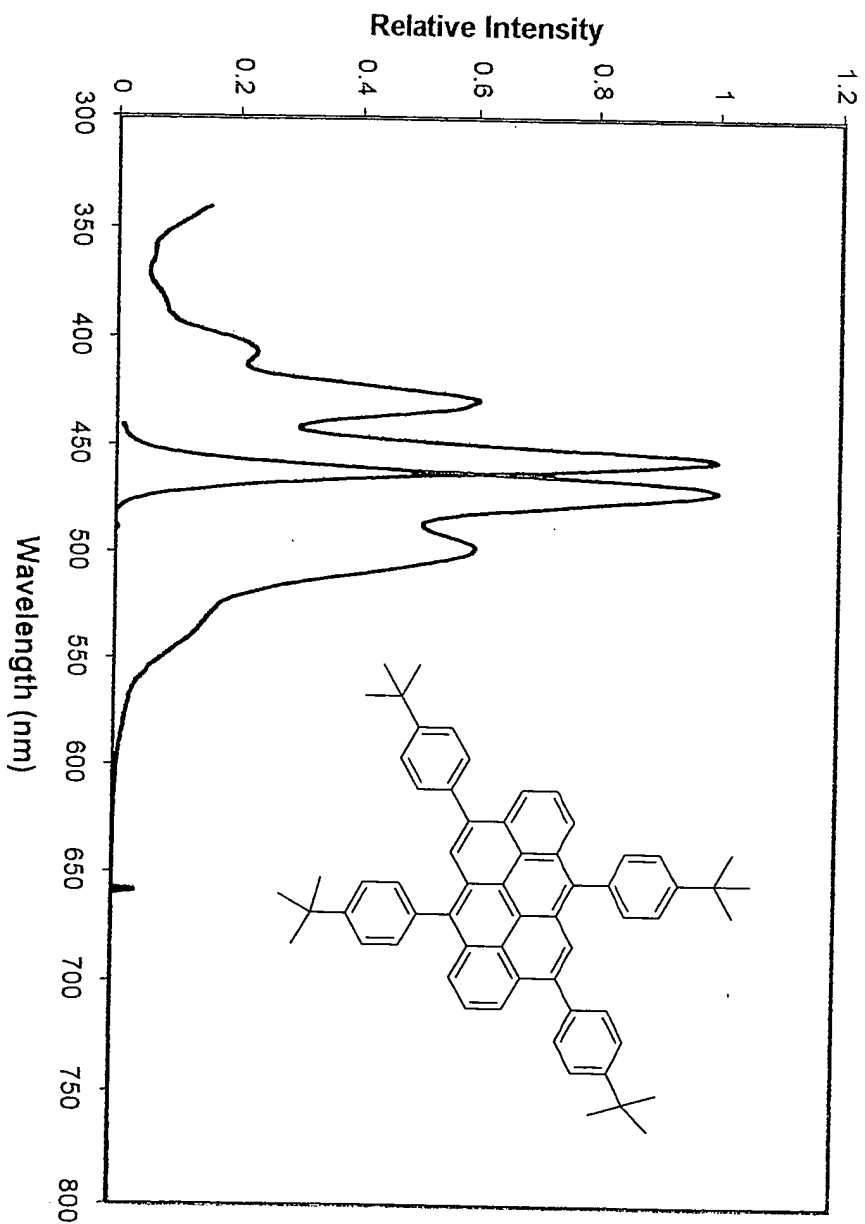


FIG. 8 shows the absorption and emission spectra of compound ARLB-40 in  $\text{CH}_2\text{Cl}_2$ .



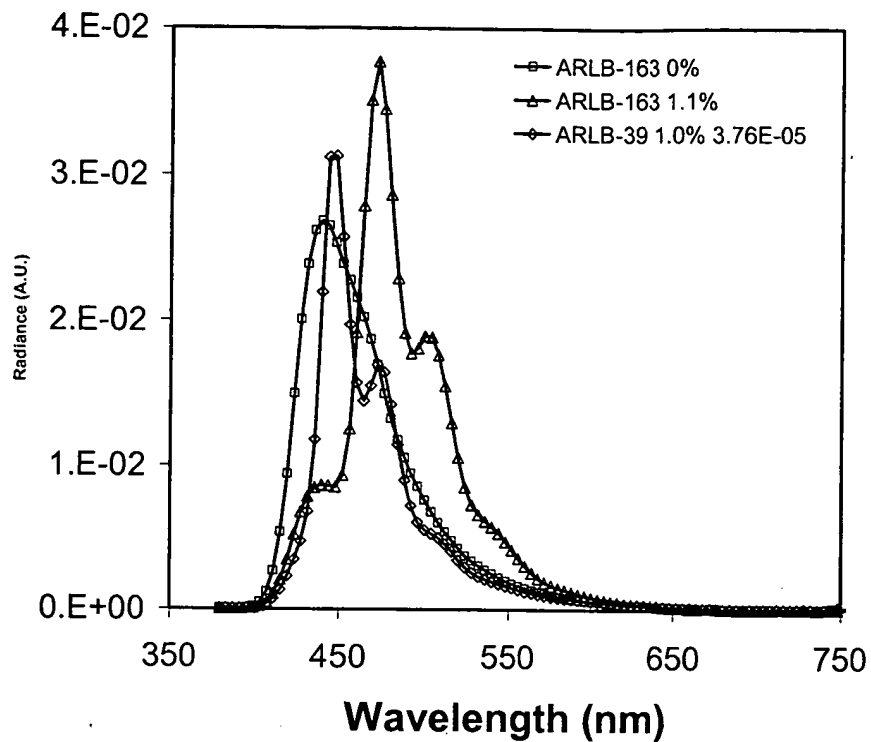


Fig. 10 EL spectra for undoped TBADN (Example 16) TBADN doped with ARL-39 (Example 17) at a concentration of 1.1%, and TBADN doped with ARL-163 (Example 18) at a concentration of 1.0%. The EL spectra were measured at a drive current density of 20mA/cm<sup>2</sup>.

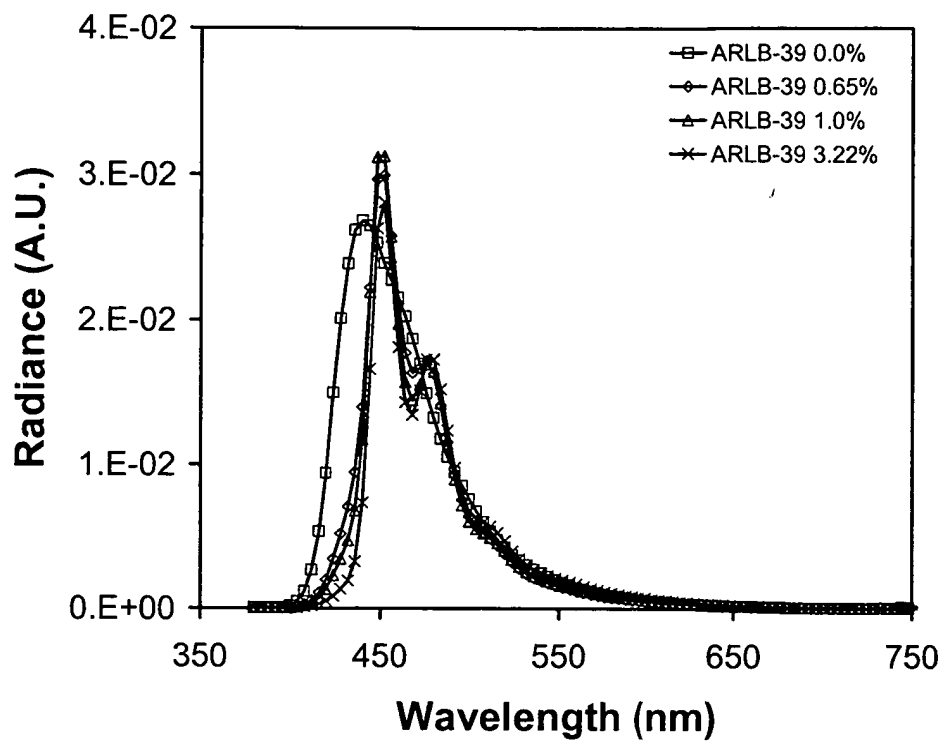


Fig. 11 Spectra for ARLB-39 as a function of doping concentration measured at a drive current density of 20 mA/cm<sup>2</sup>

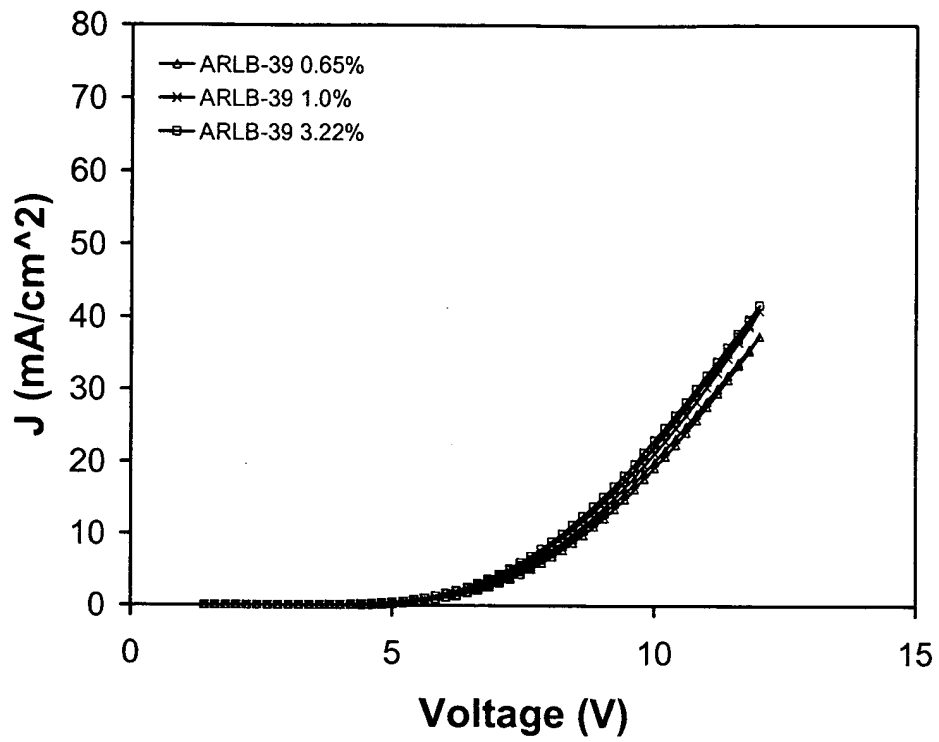


Fig. 12 illustrated the current density – voltage relation as a function of three doping concentration

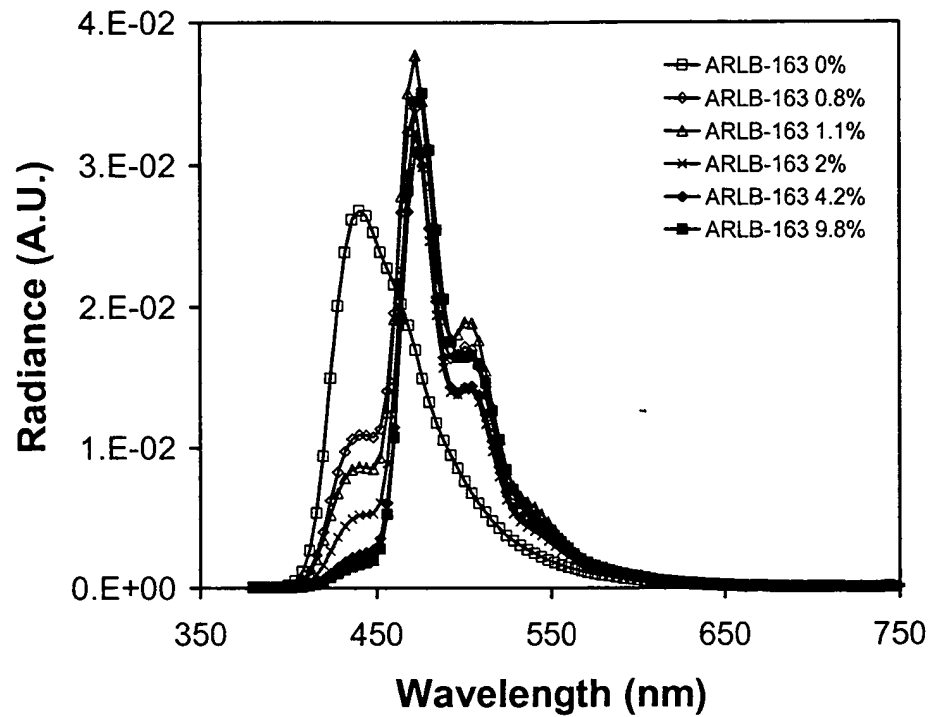


Fig. 13 Spectra for ARLB-39 as a function of doping concentration measured at a drive current density of 20 mA/cm<sup>2</sup> (Example)

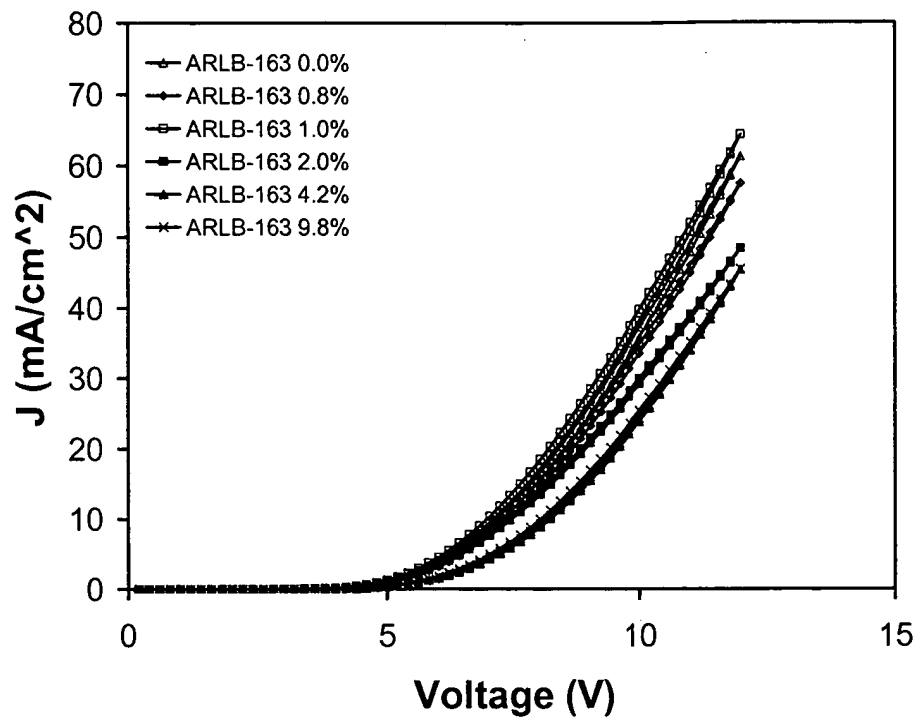


Fig. 14 illustrated the current density – voltage relation as a function of doping concentration.

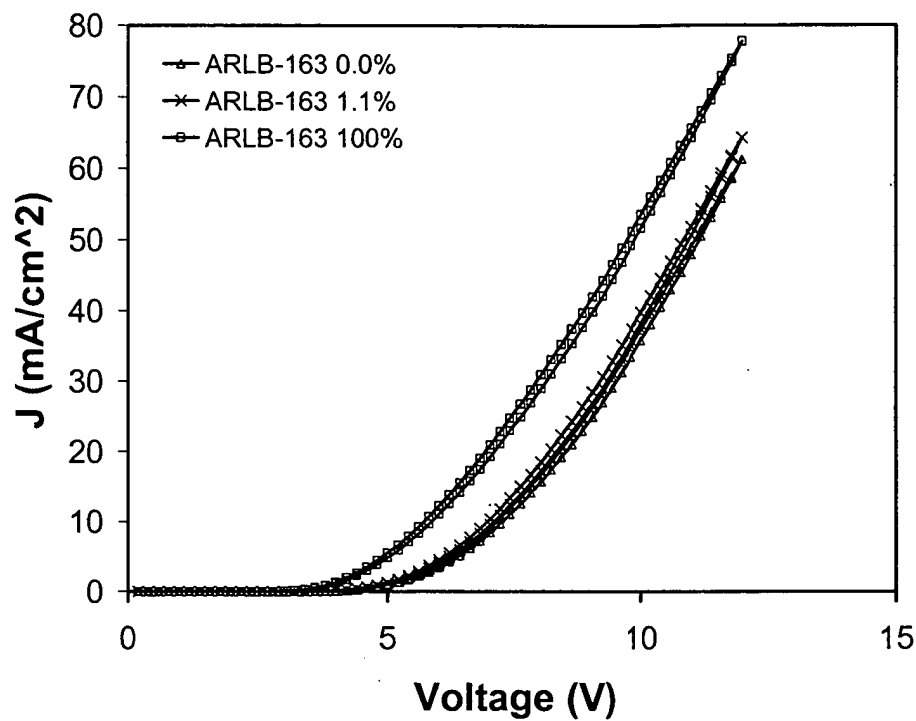


Fig. 15 illustrated the current density – voltage relation for undoped TBADN layer, TBADN doped with 1.1% (v/v) ARLB-163 and 1000 (Å) thick ARLB-163 with no doping